

FCC Part 15B

Measurement and Test Report

For

CIK Telecom INC.

282 consumers road, Toronto, ON, M2J 1P8, Canada.

FCC ID: 2AALQ-HG-A800

Test Standards: FCC Part 15 Subpart B

Product Description: ADSL Home Gateway

Tested Model: HG-A800 V1.5

Report No.: STR13078107I-2

Tested Date: 2013-07-12 to 2013-08-06

Issued Date: 2013-08-07

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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by SEM.Test Compliance Service Co., Ltd

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: CIK Telecom INC.
Address of applicant: 282 consumers road, Toronto, ON, M2J 1P8, Canada.

Manufacturer: CIK Telecom INC.
Address of manufacturer: 282 consumers road, Toronto, ON, M2J 1P8, Canada.

General Description of EUT	
Product Name:	ADSL Home Gateway
Trade Name:	/
Model No.:	HG-A800 V1.5
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC 12V
Rated Current:	1A
Power Adaptor Model:	RD1201000-C55-1MG, Input: 100-240 50/60Hz,0.6A Output: DC 12V,1A
Highest Internal Frequency:	320MHz
Classification of ITE:	Class B
Support Interface:	RJ11 ,RJ 45, USB

1.2 Test Standards

The following report is prepared on behalf of the CIK Telecom INC. in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart B, and section 15.205, 15.107, and 15.109 rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

1.4 Test Facility

- **FCC – Registration No.: 994117**

SEM.Test Compliance Services Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 994117.

- **Industry Canada (IC) Registration No.: 7673A**

The 3m Semi-anechoic chamber of SEM.Test Compliance Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 7673A.

- **CNAS Registration No.: L4062**

Shenzhen SEM.Test Electronics Service Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C (518101)

1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List		
Test Mode	Description	Remark
TM1	Operating	VOIP Phone, USB Storage, Internet

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
RJ45 Cable	2.0	Unshielded	Without Core
RJ11 Cable	1.5	Unshielded	Without Core
DC Power Cable	1.4	Unshielded	Without Core

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	E23	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
/	/	/	/

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 15.107 (a)	Conducted Emissions	Compliant
§ 15.109 (a)	Radiated Emissions	Compliant

N/A: not applicable

3. CONDUCTED EMISSIONS

3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 2.88 dB.

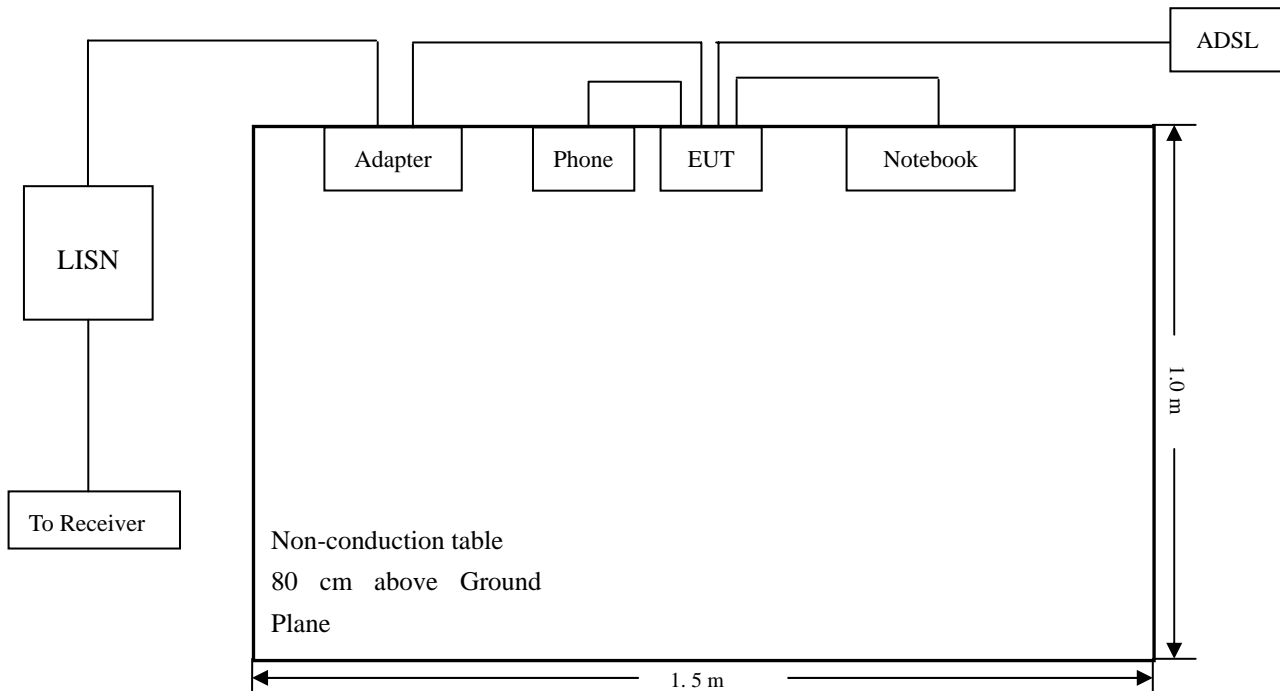
3.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2013-05-07	2014-05-06
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2013-05-07	2014-05-06
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2013-05-07	2014-05-06

3.3 Test Procedure

Test is conducting under the description of ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

3.4 Basic Test Setup Block Diagram



3.5 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

3.6 Summary of Test Results/Plots

According to the data in section 3.7, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

-3.06 dB at 0.162MHz in the **Neutral** mode, **QP** detector, **0.15-30MHz**

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

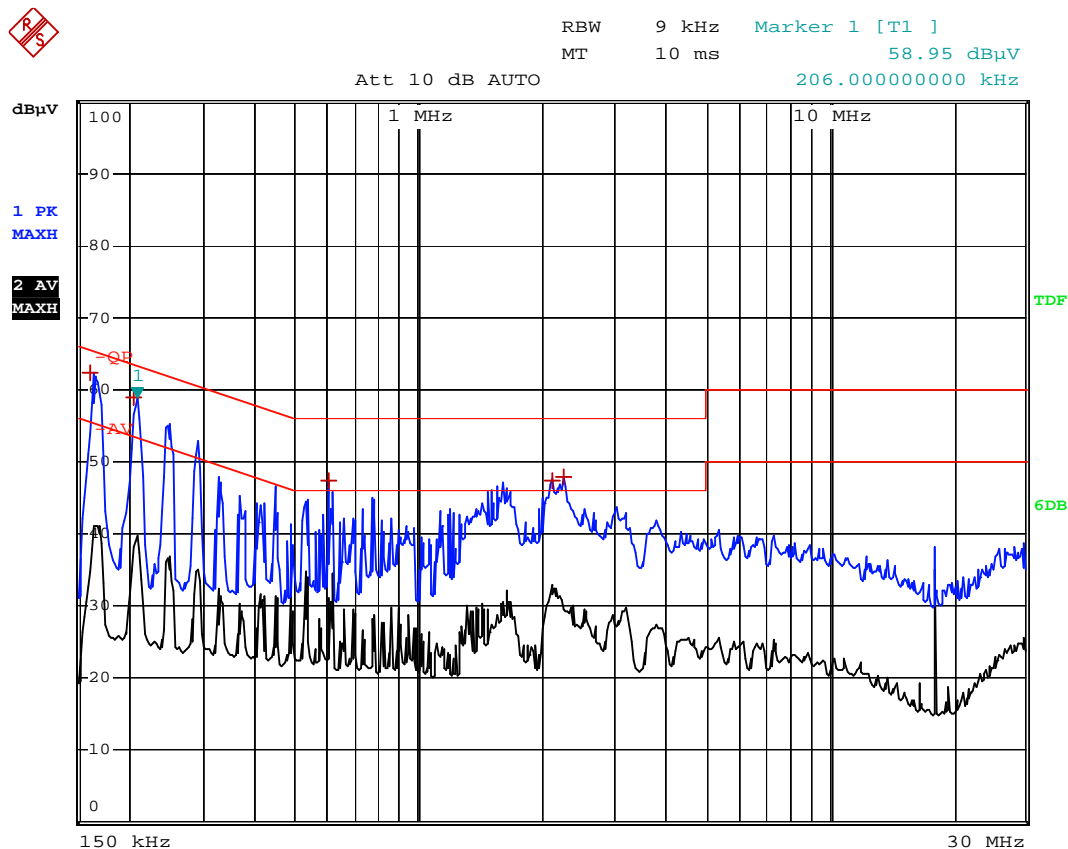
EUT: ADSL Home Gateway

Tested Model: *H-A800 V1.5*

Operating Condition: *TM1*

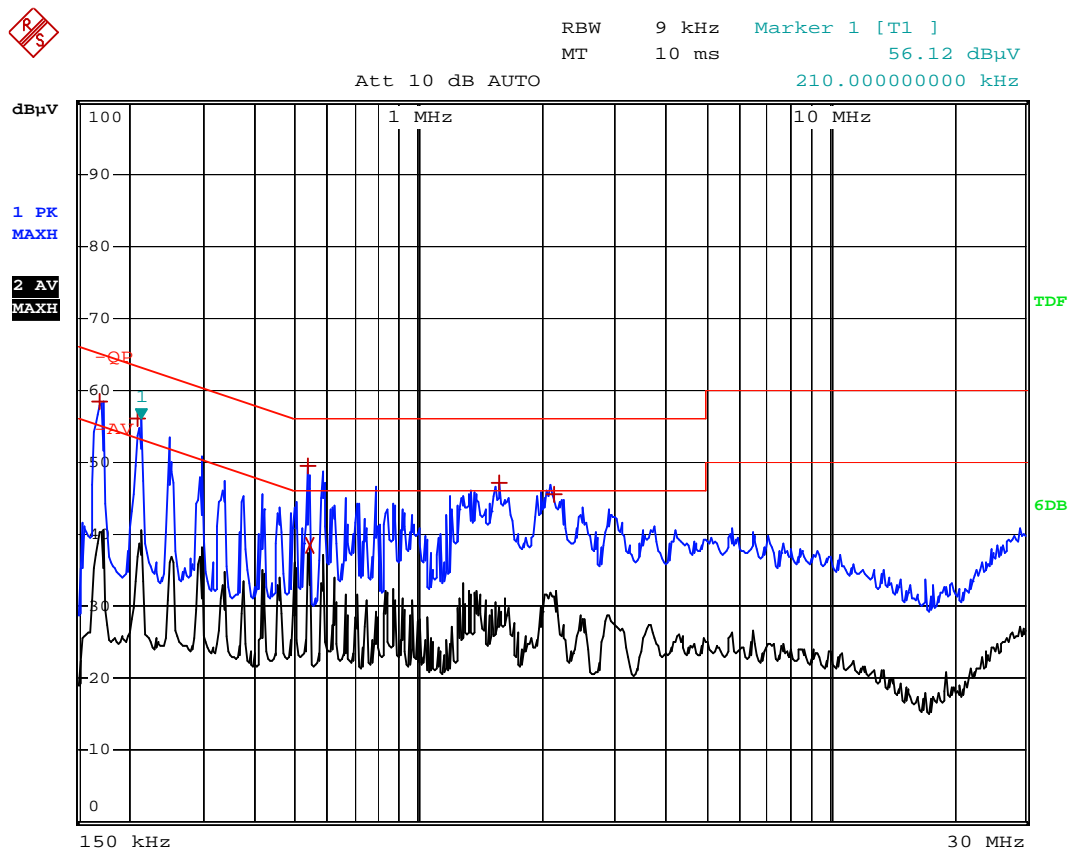
Comment: AC 120V/60Hz Adapter DC 12V

Test Specification: *Neutral*



EDIT PEAK LIST (Prescan Results)				
Trace1:		-QP		
Trace2:		-AV		
Trace3:		---		
TRACE		FREQUENCY	LEVEL dBuV	DELTA LIMIT dB
1	Max Peak	162 kHz	62.29	-3.06
1	Max Peak	206 kHz	58.94	-4.41
1	Max Peak	606 kHz	47.33	-8.66
1	Max Peak	2.114 MHz	47.42	-8.57
1	Max Peak	2.25 MHz	47.78	-8.21

Test Specification: Line



EDIT PEAK LIST (Prescan Results)				
Trace1:	-QP			
Trace2:	-AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB	
1 Max Peak	170 kHz	58.47	-6.48	
1 Max Peak	210 kHz	56.11	-7.08	
1 Max Peak	538 kHz	49.40	-6.59	
2 Average	542 kHz	38.49	-7.50	
1 Max Peak	1.57 MHz	47.04	-8.95	
1 Max Peak	2.134 MHz	45.59	-10.40	

4. RADIATED EMISSION

4.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

4.2 Test Equipment List and Details

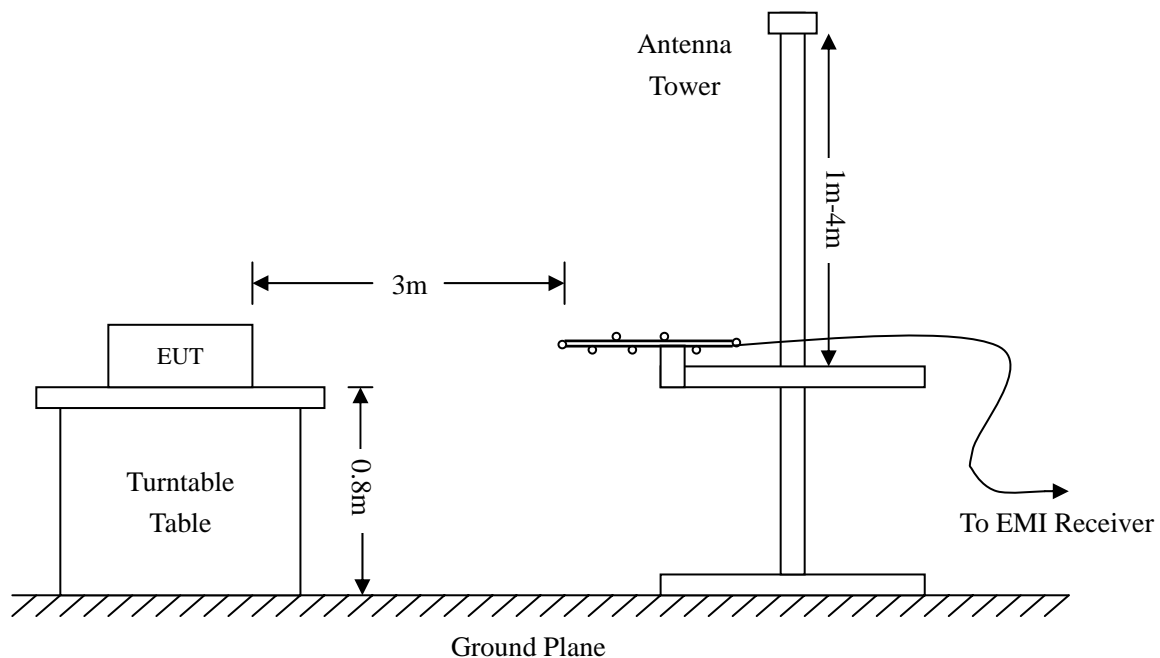
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2013-05-07	2014-05-06
EMI Test Receiver	R&S	ESVB	825471/005	2013-05-07	2014-05-06
Pre-amplifier	Agilent	8447F	3113A06717	2013-05-07	2014-05-06
Pre-amplifier	Compliance Direction	PAP-0118	24002	2013-05-07	2014-05-06
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2013-04-20	2014-04-19
Horn Antenna	ETS	3117	00086197	2013-04-20	2014-04-19
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2013-04-20	2014-04-19

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.109 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.



4.4 Test Receiver Setup

During the radiated emission test for above 1GHz, the test receiver was set with the following configurations:

For peak detector:

RBW = 1000kHz, VBW = 3000kHz, Sweep Time = Auto

For average detector:

RBW = 1000kHz, VBW = 10Hz, Sweep Time = Auto

4.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB μ V means the emission is 6dB μ V below the maximum limit for a Class B device. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15.109(a) Limit}$$

4.6 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	1011 mbar

4.7 Summary of Test Results/Plots

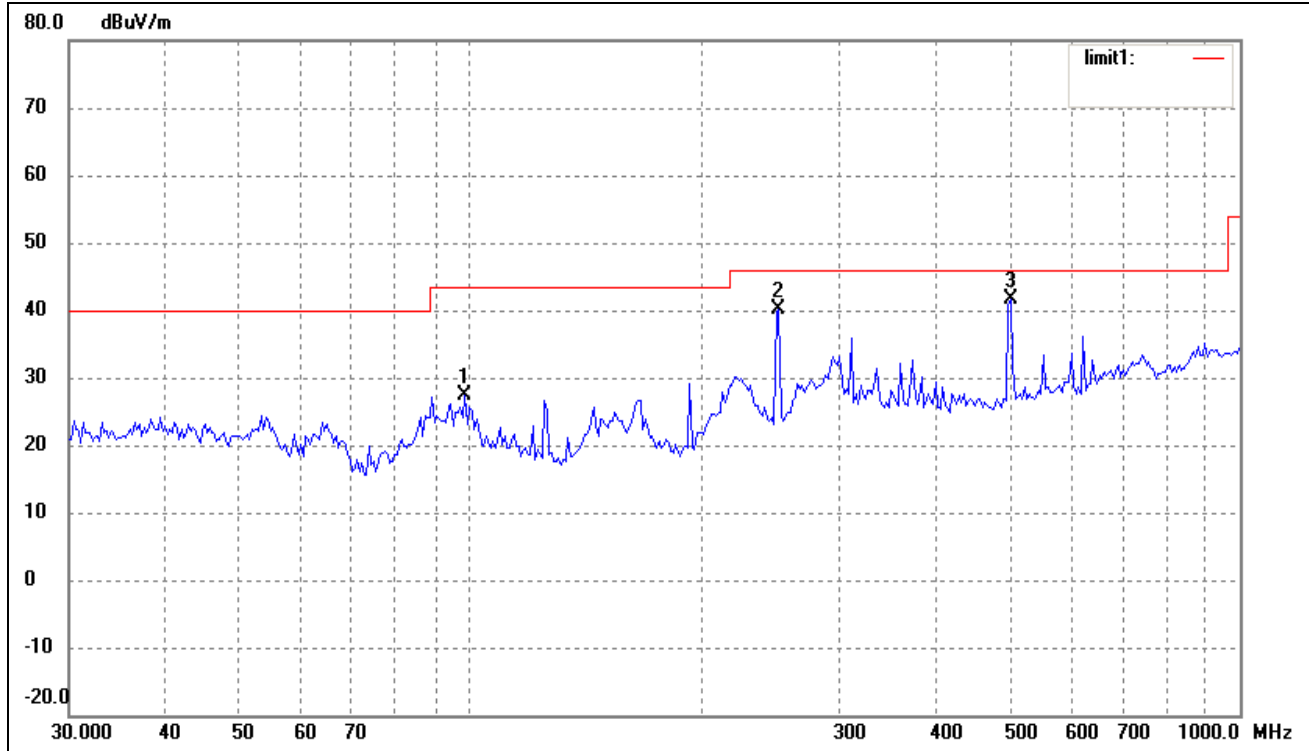
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-3.79 dB at 499.4247MHz in the Vertical polarization, TM1 mode, 9 kHz to 2 GHz, 3Meters

Plot of Radiated Emissions Test Data

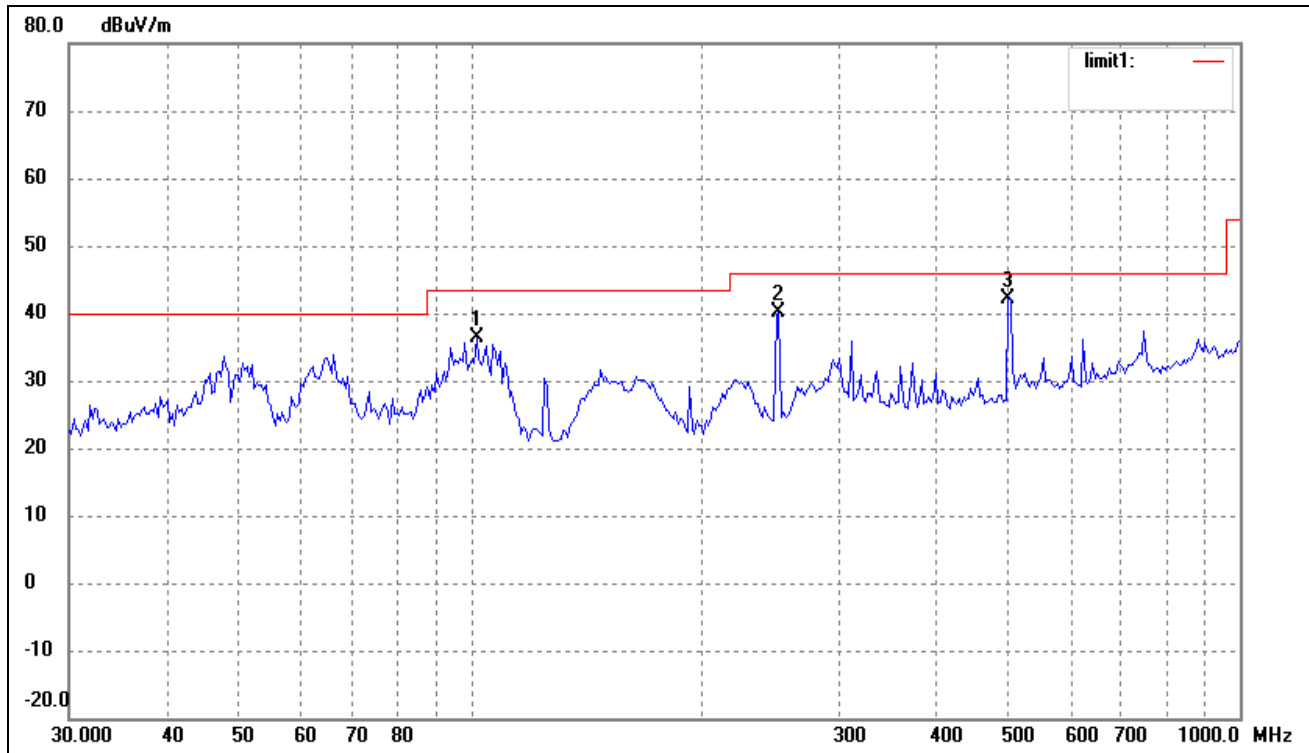
EUT: ADSL Home Gateway
 Tested Model: H-A800 V1.5
 Operating Condition: TM1
 Comment: AC 120V/60Hz Adapter DC 12V

Test Specification: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	98.1419	20.96	6.39	27.35	43.50	-16.15	264	100	peak
2	251.1804	32.70	7.34	40.04	46.00	-5.96	113	200	peak
3	502.9395	29.29	12.30	41.59	46.00	-4.41	287	100	peak

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	101.6443	29.63	6.67	36.30	43.50	-7.20	240	100	peak
2	251.1804	32.70	7.34	40.04	46.00	-5.96	187	100	peak
3	499.4247	30.03	12.18	42.21	46.00	-3.79	220	100	peak

Note: Testing is carried out with frequency rang 9kHz to the 2GHz, which above 1GHz is close to the noise base even antenna close up to 1meter distance according the measurement of ANSI C63.4.

The measurements greater than 20dB below the limit from 9kHz to 30MHz and the data is not display.

***** END OF REPORT *****